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Alcyonidium (Paralcyonidium) vermiculare, a New Sub-genus and Species of Ctenostomatous Bryozoa.

By

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With 1 Figure.

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Thanks to the kindness of Mr. Toshiro Kumada, I have recently had the opportunity of examining numerous alcoholic specimens of a curious ctenostomatous bryozoa, which were dredged from a depth of 119 meters at a spot off Senzaki in the Yamaguchi Prefecture. The species in question appears fairly common in this locality because of the abundance of colonies and fragments in the collection.

In spite of the resemblace in the external feature of zooecium as well as in the internal structure of polypide, the present form stands at variance from *Alcyonidium* in having the extremely long string-like zoarium and also the highly developed gizzard. The differences, however, appear to me not to be of more than subgeneric value. For it I would propose the subgeneric name of *Paralcyonidium*. Its diagnosis runs as follows:

Ctenostomata with irregularly hexagonal, chitinous zooecia which form an extremely long string-like zoarium. Polypide provided with twenty long tentacles as well as with a distinct large globular gizzard at the hind end of œsophagus.

As is evident from the above, the zoarium of the present species is represented by a very long, slender-string, without giving off any branches, and is almost uniformly thick throughout, measuring 2 or 3 mm. It is attached to the substratum by its much slender end, The zooecia, although difficult to recognize with any degree of

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accuracy, may be said to be of an irregulary hexagonal shape and to count 10 to 15 in a cross section of the zoarium. Entirely covering the surface of the colony is a layer of cuticula, which is of a moderate thickness and does not contain any diatome and other dèbris. The lateral and basal walls between the neighbouring zooecia are of a very delicate and non-chitinous nature, remaining soft, much as in all other ctenostomata. The polypide, when retracted, is found deep in the zoöecium, this state of thing being effected by the contraction of special muscular bands.

The polypide is constructed on the same plan as that found in almost all the species of ctenostomata. The lophophore is of a circular shape and gives off from its margin twenty tentacles, which are hollow but closed at their distal end. The walls of the tentacles are made up of a single layer of cells which are furnished on the outer surface with tolerably long cilia. Somewhat excentrically placed within the circle of twenty tentacles is the mouth, close to which there exist the nerve-ganglion. The anus occurs just outside of the said circle near the mouth and nerve-ganglion.

The alimentary canal is somewhat complex, five regions being distinguished, *viz.*, the pharynx, the œsophagus, the gizzard, the stomach and the intestine. The mouth directly leads into the wide pharynx, lined with an epithelium of large columnar cells. Separated by a slight constriction from the pharynx is the spacious and very thin-walled oesophagus which abruptly turns upwards. Next comes the gizzard, which is the most remarkable portion of the alimentary canal, arising as a large outbulging between the œsophagus and the stomach, as is seen in Fig. 1. It is of highly muscular nature. The stomach is divided into two distinct portions by the nature of its lining epithelium, a lower digestive and an upper non-digestive. The upper portion, which continues into the intestine, is lined, like the pharynx, with an epithelium of ciliated columnar cells, Near the opening of the gizzard the walls of the stomach are thickened, con-

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sisting of several layers of spherical cells, instead of a single layer of columnar ones. The intestine is a thin-walled sac, being marked off from the stomach by a constriction. It opens to the exterior by the anus, placed just outside of the circle of the tentacles, as before mentioned.

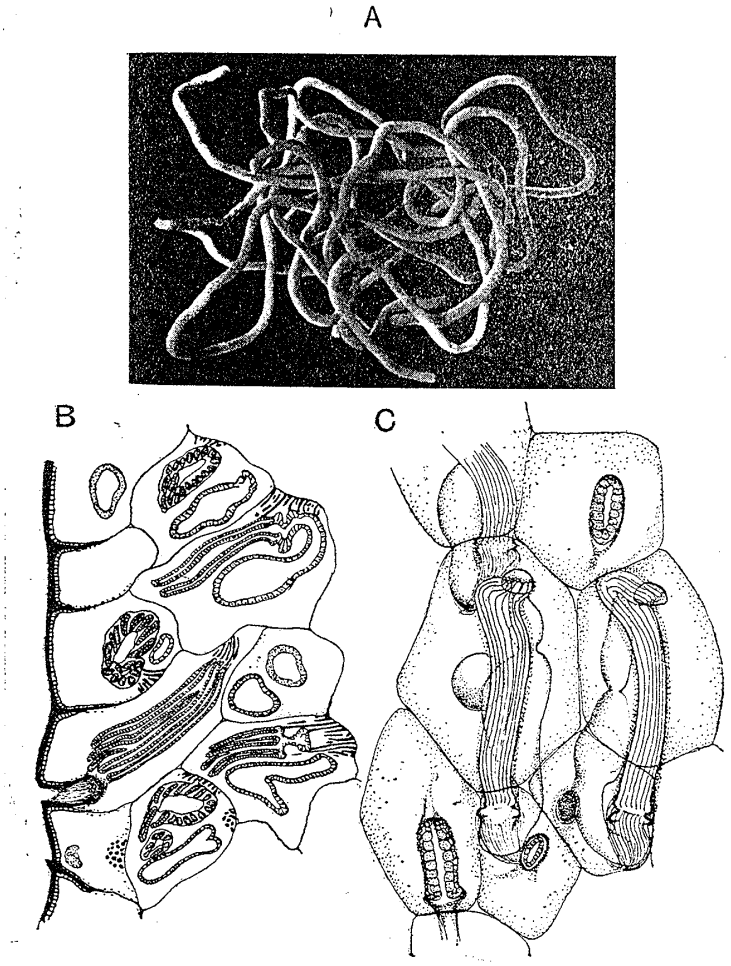

Fig. 1. *Paralcyonidium vermiculare*, n. sp.
A. A portion of zoarium. × ca. ½
B. Longitudinal section of zoarium. × 45
C. Optical section of a few zooecia with young and old polypides within. × 45

The muscular system is moderately well developed. A little distance from the anus is a series of long muscle fibres which are attached above in a semi-circular arrangement near the base of the

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tentacles. Inferiorly the fibres converge into a band which is fixed to the lower corner.

In structure the ovary is quite similar to that of *Alcyonidium gelatinosum* (L.) described by Waters from the vicinity of Franz– Josef Land, the ovum being surrounded by small follicle cells, arranged in one or more rows. Occasionally included in the follicle are found two, or more rarely three, ova of large size.

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